6/7/90

000002



# SITE ASSESSMENT

# FOR

# MORRIS PAINT AND VARNISH COMPANY
# EAST ST. LOUIS, ILLINOIS

Prepared for:

U.S. Environmental Protection Agency
Region V
230 South Dearborn Street
Chicago, Illinois

CONTRACT NO. 68-01-7367

TAT-05-G2-01840

TDD# 5-9003-09

Prepared by:

WESTON-MAJOR PROGRAMS DIVISION
Technical Assistance Team
Region V

June 1990

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## 1.0 SITE DESCRIPTION

The Morris Paint and Varnish Company (Morris Paint) is a defunct paint manufacturing facility located at 1445 Brady Street, East St. Louis, Illinois (Figure 1). The site is situated in an industrial/ residential area with industrial property bordering the site to the southwest and northwest, and residential property bordering the site to the northeast. 15th Street is located along the southeast border of the site. A school is located approximately one quarter of a mile west of the site. The solitary building on the site is divided into three sections (manufacturing area, dock area, and warehouse) based on paint manufacturing operations (Figure 2). Drums and five-gallon pails containing hazardous materials were located in all three areas.

Site topography is flat and the nearest waterway is the Mississippi River, located approximately two miles west of the site. The fertile alluvial soils in the area are derived from thick glacial drifts consisting primarily of finely textured clays intermingled with fine sandy loams. The soil is underlain by Mississippian and Pennsylvanian rocks consisting of limestone and dolomite with subordinate amounts of sandstone and shale. Residents in the East St. Louis area are serviced by municipal water.

## 2.0 SITE BACKGROUND

The Morris Paint site is owned by Samuel Ferguson. Mr. Ferguson has owned the site since 1979, when he purchased the property and all related materials from a bankruptcy court. A large fire destroyed much of the facility in 1982. During Illinois Environmental Protection Agency (IEPA) inspections of the site in November 1987, and January 1988, over 1,800 drums containing resins and solvents, many of which were in poor condition, were observed. Many of these drums were exposed to the weather. IEPA records indicated that some of the drums had been damaged by delivery trucks, and some drums showed evidence of rust damage. According to Mr. Ferguson, the drums were present on site when he purchased the property. Many open drums, areas of spillage, and areas of waste residue were observed in the dock area (Figure 2). An open tank containing burning paint cans, buckets, and refuse was also observed.

During January 1988, IEPA collected samples from the dock area, soil surface, waste residue pile, and drums to determine the presence of hazardous waste at the site. Analytical results indicated the presence of flashpoints below 140 degrees Fahrenheit (°F), and the presence of toluene, ethylbenzene, and xylene in some of the samples. On April 25, 1988, IEPA began a two-phase removal at the site. Phase I consisted of conducting an inventory, staging, sampling, and analyzing all drums on site. Phase I of the removal was completed on May 10, 1988, at a cost of approximately $250,000. Phase II, which consisted of disposal of 1,903 drums,

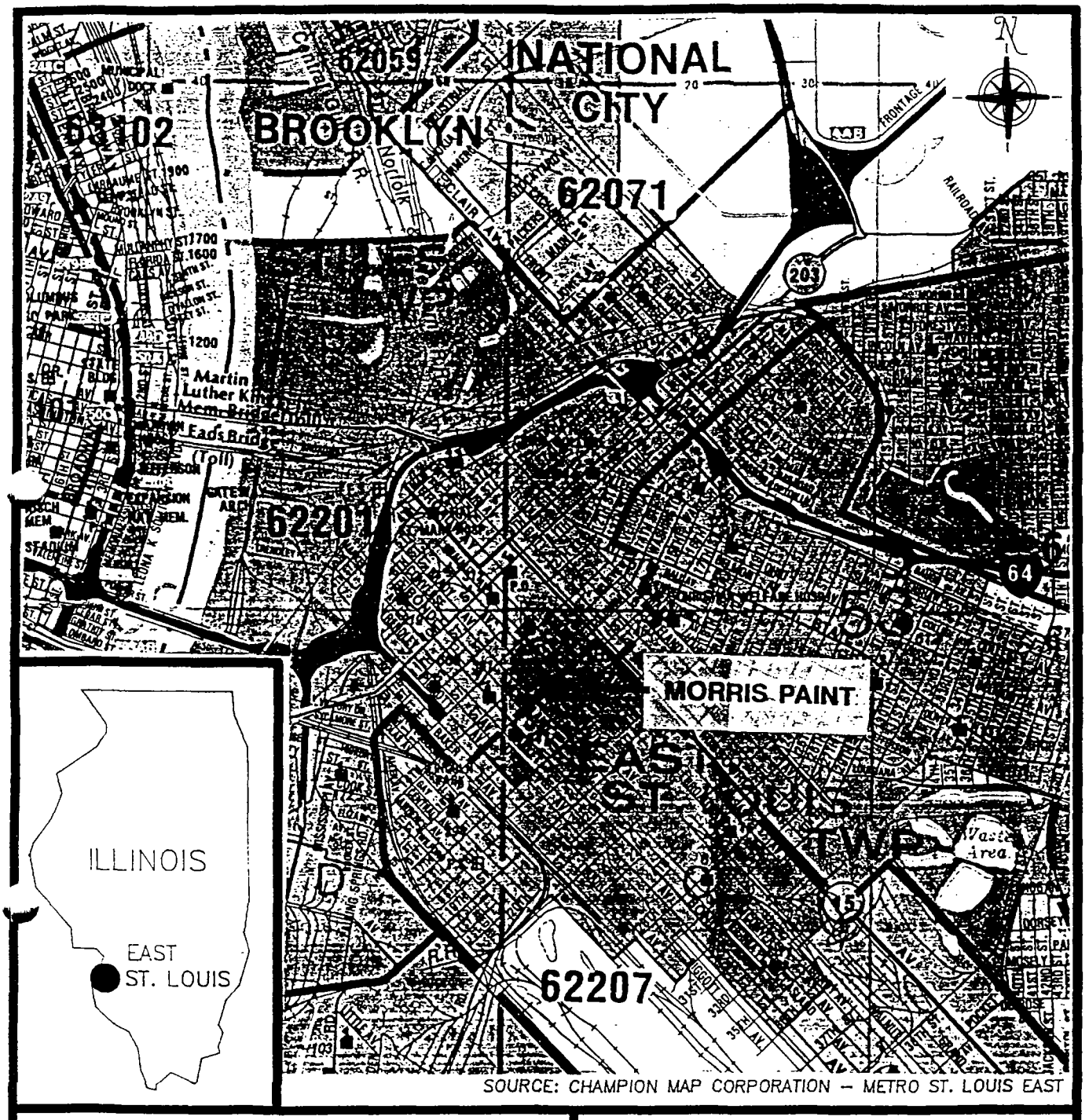



FIGURE 1

SITE LOCATION MAP

MORRIS PAINT & VARNISH CO.

EAST ST. LOUIS, ILLINOIS

SCALE: 1 INCH = APPROXIMATELY 0.5 MILES

WESTON MANAGERS DESIGNERS/CONSULTANTS — MAJOR PROGRAMS DIVISION

REGION V TECHNICAL ASSISTANCE TEAM

| DRAWN BY | DATE | PCS # |
|---|---|---|
| M. BALAZS | 03-19-90 | 2650 |
| APPROVED BY | DATE | TDD # |
| A. POTJE | 03-19-90 | 5-9003-09 |

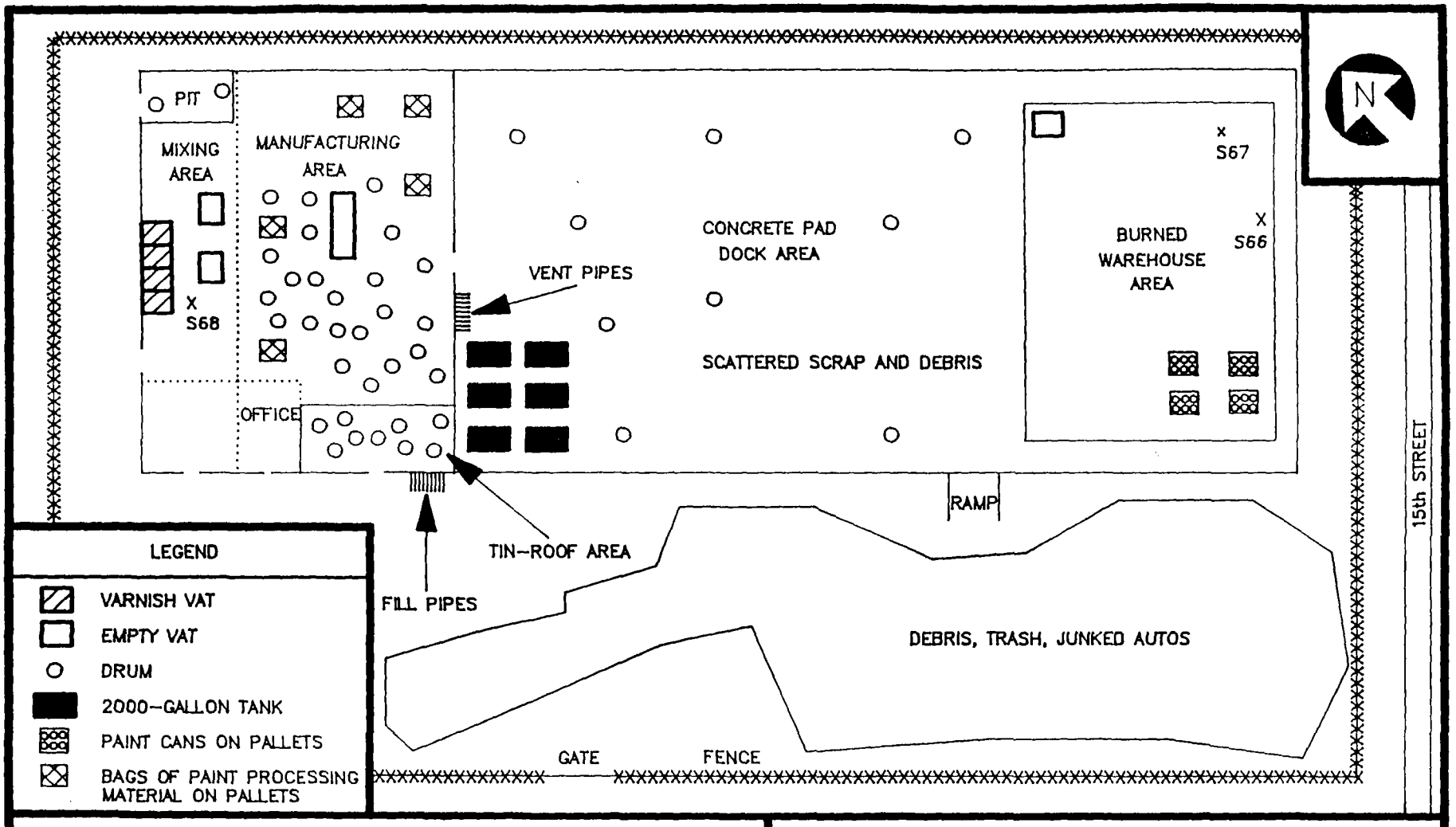



FIGURE 2

SITE MAP WITH SAMPLE LOCATIONS *

MORRIS PAINT & VARNISH CO.

EAST ST. LOUIS, ILLINOIS

* SAMPLES S61 THROUGH S65 COLLECTED FROM VARIOUS DRUMS IN MANUFACTURING AREA

NOT TO SCALE

WESTON MANAGERS DESIGNERS/CONSULTANTS MAJOR PROGRAMS DIVISION

REGION V TECHNICAL ASSISTANCE TEAM

| | | |
|---|---|---|
| DRAWN BY M. BALAZS | DATE 4-12-90 | PCS # 2650 |
| APPROVED BY A. POTJE | DATE 4-12-90 | TDD # 5-9003-09 |

began on May 15, 1989, and was completed on May 30, 1989, at a cost of approximately $650,000.

During the IEPA removal only the drums outside the building were removed. All drums inside the building, which were used for production of paint materials, were left on site.

In May, August, and November, 1989, the IEPA reinspected the site and found the facility to be in violation of Subsection 21(f) of the Illinois Environmental Protection Act. Through a series of Illinois circuit court orders, the facility was temporarily closed on January 4, 1990, and permanently closed on February 5, 1990 due to disposal of hazardous waste on site without a Resource Conservation and Recovery Act (RCRA) permit. Two fires occurred at the site on March 5, and March 9, 1990. The U.S. EPA was informed of the fires and resulting threats by the IEPA on March 9, 1990. The TAT was tasked to conduct a site assessment (SA) on March 12, 1990.

## 3.0 SITE ASSESSMENT

On March 13, 1990, TAT members Kevin Axe, Nikhil Kumaranayagam, and Nick Rombakis accompanied U.S. EPA On-Scene Coordinator (OSC) Ken Theisen on a SA of the Morris Paint facility. The TAT conducted an initial perimeter survey and observed that access to the site was not restricted because of holes in the fence. The solitary building on site appeared to have three sections (Figure 2). The dock section consisted of a concrete pad without a roof, and contained drums, paint cans, empty vats, tanks, and metal debris. The warehouse section was damaged by the fire that occurred on March 9, 1990, and contained paint cans, buckets, and drums. The warehouse section had collapsed walls and a partially collapsed roof that was observed to be unstable. An inspection of the interior of this section of the building was not conducted because of the unstable condition of the walls and roof. The manufacturing section had a leaky roof and broken windows and was observed to contain over 200 drums, paint cans, buckets, vats, tanks and metal debris. The mixing area, located within the manufacturing section, was observed to contain vats, and a pit with drums surrounded by liquid to a depth of approximately eight inches.

The TAT conducted air monitoring with a radiation detector, an photoionization detector (HNU), toluene Draeger tubes, and a Tritector combustible gas indicator. No readings above background levels were measured with the radiation detector and Tritector. Readings of 10-20 units above background were measured with the HNU in the manufacturing area, and in the mixing area. The TAT measured HNU readings over 200 units in the headspace of some drums labelled as coal tar, methyl ethyl ketone, and petroleum naphtha. A reading of 300 units was measured in the headspace of a coal tar drum using toluene Draeger tubes.

Five samples were collected from drums in the manufacturing area, two samples from paint solids adjacent to the warehouse area, and one sample from floor scrapings in the mixing area. The drum samples and the floor scrapings were analyzed for flashpoint and F-listed solvent scan. In addition, the coal tar drum sample was analyzed for polychlorinated biphenyls (PCBs). The two paint solids were analyzed for extraction procedure toxicity (EP Tox) metals, Toxicity Characteristic Leaching Procedure (TCLP) metals, and Hazardous Substance List (HSL) metals, PCBs and acid/base neutrals (ABN). All samples were analyzed by Suburban Laboratories, Inc. under TAT Analytical Services TDD# 5-9003-L09.

## 4.0 ANALYTICAL RESULTS

Four of the samples analyzed exhibited flashpoints below 140°F characterizing these wastes as hazardous according to the RCRA characteristic of ignitability (40 CFR 261.21) (Table 1). The results of EP Tox, TCLP, and HSL metals analyses for the two paint solids samples are presented in Table 2. EP Tox and TCLP analyses did not indicate the material is hazardous based on the characteristic of EP Tox, although both samples indicated elevated levels of total metals (aluminum, arsenic, barium, chromium, iron, lead, and zinc). ABN analysis did not indicate any elevated concentrations (Table 3). One paint solid sample exhibited a PCB concentration of 126 parts per billion (ppb) (Table 1), which is below the 50 parts per million (ppm) limit established by the Toxic Substances Control Act requiring specific management/disposal practices. Solvent scan analyses are presented in Table 4. Xylene, toluene, ethyl benzene, methyl isobutyl ketone and hexane were all detected in levels greater than 100 ppm in the drum samples.

## 5.0 THREAT TO HUMAN HEALTH AND THE ENVIRONMENT

Conditions observed at the Morris Paint site that may be considered to warrant a removal action as set forth in Section 300.415(b)(2) of the National Contingency Plan (NCP) include:

- Threat of fire and explosion;
- Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby populations, animals, or food chain;
- Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release, and;
- Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

**TABLE 1**

ANALYTICAL RESULTS OF TAT SAMPLING
FLASHPOINT AND PCB ANALYSIS OF DRUM AND SOLID SAMPLES*
MORRIS PAINT, EAST ST. LOUIS, ILLINOIS
March 13, 1990

| Sample # | Flashpoint (°F) | PCB (ppm) |
|---|---|---|
| S-61 | 58 | ND |
| S-62 | 31 | NA |
| S-63 | >212 | NA |
| S-64 | 58 | NA |
| S-65 | 31 | NA |
| S-66 | NA | ND |
| S-67 | NA | .126 |
| S-68 | 175 | NA |

* Analyzed by Suburban Laboratories, Inc., Hillside, Illinois under TAT Analytical Services TDD# 5-9003-L09.

ND = Not detected at method detection limit.

NA = Not analyzed.

**TABLE 2**

ANALYTICAL RESULTS OF TAT SAMPLING
HSL, TCLP, and EP TOX METALS ANALYSIS OF SOLID SAMPLES*
MORRIS PAINT, EAST ST. LOUIS, ILLINOIS.
March 13, 1990

| | S-66 | | | S-67 | | |
|---|---|---|---|---|---|---|
| METAL | TOTAL (ppm) | TCLP (mg/l) | EP TOX (mg/l) | TOTAL (ppm) | TCLP (mg/l) | EP TOX (mg/l) |
| Aluminum | 823 | NA | NA | 1699 | NA | NA |
| Antimony | 128 | NA | NA | <10 | NA | NA |
| Arsenic | 10.4 | ND | ND | 286 | ND | ND |
| Barium | 7.8 | ND | ND | 779 | .29 | ND |
| Beryllium | ND | NA | NA | 9.3 | NA | NA |
| Cadmium | ND | ND | ND | 20.4 | ND | ND |
| Calcium | 18762 | NA | NA | 3609 | NA | NA |
| Chromium, total | 10910 | ND | ND | 7605 | ND | ND |
| Cobalt | 4.1 | NA | NA | 14.7 | NA | NA |
| Copper | 2.6 | NA | NA | 64 | NA | NA |
| Iron | 1029 | NA | NA | 109270 | NA | NA |
| Lead | 45026 | .39 | ND | 93010 | 2.57 | ND |
| Magnesium | 635 | NA | NA | 1573 | NA | NA |
| Manganese | 95.3 | NA | NA | 221 | NA | NA |
| Mercury | 1.4 | .0002 | ND | 1.6 | .0007 | .0006 |
| Nickel | ND | NA | NA | 40 | NA | NA |
| Potassium | 44.6 | NA | NA | 265 | NA | NA |
| Selenium | ND | ND | ND | 13.2 | ND | ND |
| Silver | ND | ND | ND | ND | ND | ND |
| Sodium | 432 | NA | NA | 796 | NA | NA |
| Thallium | ND | NA | NA | ND | NA | NA |
| Tin | 10.1 | NA | NA | ND | NA | NA |
| Vanadium | ND | NA | NA | 73.3 | NA | NA |
| Zinc | 219 | NA | NA | 64780 | NA | NA |

* Analyzed by Suburban Laboratories, Inc., Hillside, Illinois under TAT Analytical Services TDD# 5-9003-L09.

ND = Not detected at method detection limit.

NA = Not analyzed.

**TABLE 3**

ANALYTICAL RESULTS OF TAT SAMPLING
ACID, BASE/NEUTRAL EXTRACTABLES ANALYSIS OF SOLID SAMPLES*
MORRIS PAINT, EAST ST. LOUIS, ILLINOIS.
March 13, 1990
(All results are reported in parts per million)

| Compound | S-66 | S-67 |
|---|---|---|
| Bis(2-ethylhexyl)phthalate | ND | .7 |
| Dimethyl phthalate | ND | .1 |
| Di-n-butylphthalate | .1 | .3 |
| Fluoranthene | .6 | ND |
| Naphthalene | .2 | .4 |
| Pyrene | 3.1 | ND |
| Phenanthrene | ND | .1 |

* Analyzed by Suburban Laboratories, Inc., Hillside, Illinois under TAT Analytical Services TDD# 5-9003-L09.

ND = Not detected at method detection limit.

**TABLE 4**

ANALYTICAL RESULTS OF TAT SAMPLING
SOLVENT SCAN ANALYSIS OF DRUM SAMPLES*
MORRIS PAINT, EAST ST. LOUIS, ILLINOIS
March 13, 1990
(All results are reported in parts per million)

| Solvent | S-61 | S-62 | S-63 | S-64 | S-65 | S-68 |
|---|---|---|---|---|---|---|
| Benzene | 29 | ND | ND | 60 | ND | ND |
| Ethylbenzene | 85 | 40 | ND | 2980 | 540 | 178 |
| Hexane | ND | 1480 | ND | ND | 1460 | ND |
| Toluene | ND | 15260 | ND | 48930 | 48660 | 133 |
| 1,1,1-Trichloroethane | 72 | ND | ND | ND | ND | ND |
| Methyl isobutyl ketone | 128 | ND | ND | ND | ND | 63 |
| Xylene (m,o,p) | 1378 | 180 | ND | 35830 | 3790 | 1716 |
| Tetrachloroethene | ND | ND | ND | 50 | ND | ND |

* Analyzed by Suburban Laboratories, Inc., Hillside, Illinois under TAT Analytical Services TDD# 5-9003-L09.

ND = Not detected at method detection limit.

## 5.1 Threat of Fire or Explosion

The most dangerous threat present is that of fire or explosion. Two fires which occurred at the site on March 5, and March 9, 1990 further exemplified this threat. Analytical results from four of the five drum samples indicated that these materials have a flashpoint ranging from 31°F to greater than 212°F. If these substances are exposed to an ignition source, an explosion or fire may result. Harmful particulate may spread over large areas as a result of fire or explosion.

## 5.2 Potential Exposure to Hazardous Substances

Due to the proximity of industrial facilities, residences, and a school, the potential of human exposure to hazardous substances exists. Based on labels observed, the drums and cans potentially contain hazardous materials including solvents, resins, and paints. Ethylbenzene, xylene, and hexane were detected in concentrations greater than 1000 ppm in the drums and floor scrapings sampled. The threat of direct contact with chemicals on site is increased by the lack of access restriction at the site.

## 5.3 Potential Threat of Release

Containers observed on site were not clearly labelled, dented, and deteriorating. The contents of several cans, vats, and tanks were observed to have leaked onto the floor and loading areas of the facility. Analysis of the floor scraping sample indicated the presence of ethylbenzene, toluene, and xylene. The presence of numerous drums at the unsecured site provides the potential for additional releases.

## 5.4 Potential Migration Due to Weather Conditions

Hazardous materials are stored in a building with a deteriorating roof. In the event of heavy rain, it is likely that the vats, open drums, and cans could overflow their contents. Runoff from such an event could potentially transport contaminants off site.

## 5.5 Specific Chemical Threats

The specific contaminants found at this site are components of paints, thinners, and resins. A solvent scan of drum samples and the floor scrapings indicated high concentrations (over 1000 ppm) of ethylbenzene, xylene, hexane, toluene, and low concentrations (100-650 ppm) of benzene and methyl isobutyl ketone. Exposure to these chemical components of paint products via ingestion, inhalation, or absorption, can cause dizziness, nausea, headaches, eye and skin irritations and large doses may cause death (Sittig, Marshall; Handbook of Toxic and Hazardous Chemicals and Carcinogens, 1985).

## 6.0 COST ESTIMATES

The TAT prepared two cost estimates for the mitigation of the hazardous materials at the site (Attachment B). The first was based on assumptions provided by U.S. EPA OSCs Charles Gebien, Brad Benning, and Theisen, and estimates the total project cost to be approximately $636,088.00. The second is based on TAT assumptions and estimates the total project cost to be approximately $660,771.00.

**ATTACHMENT A**

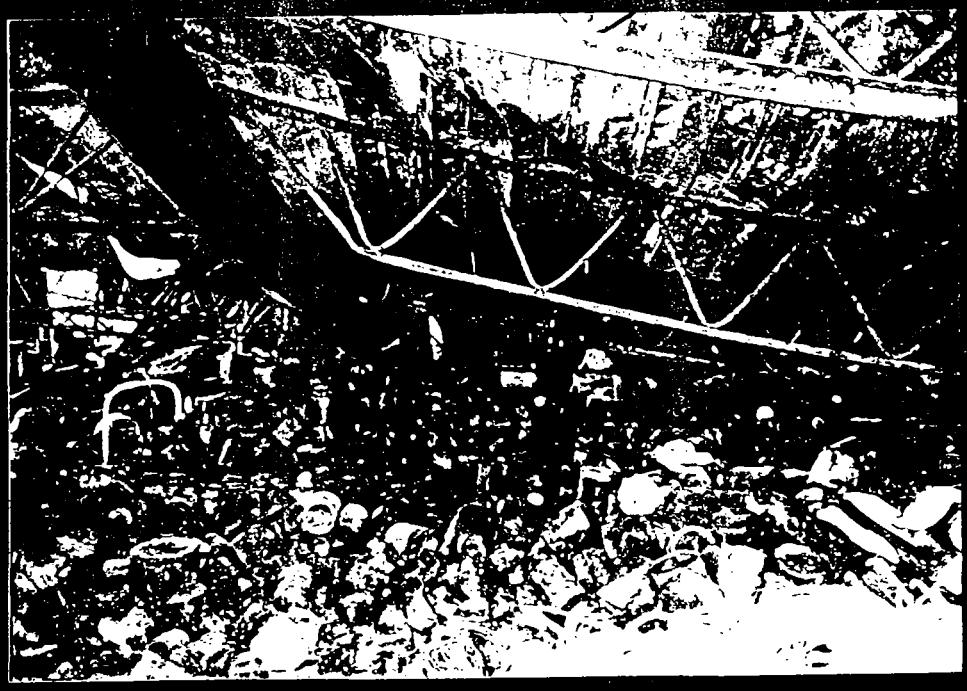
SITE PHOTOGRAPHS

| | |
|---|---|
| PHOTO: | 1. |
| SITE NAME: | MORRIS PAINT CO, EAST ST LOUIS, ILLLINOIS |
| DESCRIPTION: | DOCK AREA WITH MEATAL DEBRIS, DRUMS, AND VATS, LOOKING SOUTHEAST. |
| DATE/TIME: | 03-12-90/1715 |
| PHOTOGRAPHER: | N. KUMARANAYA[illegible] |
| FILM: | 35MM, ISO 200 |

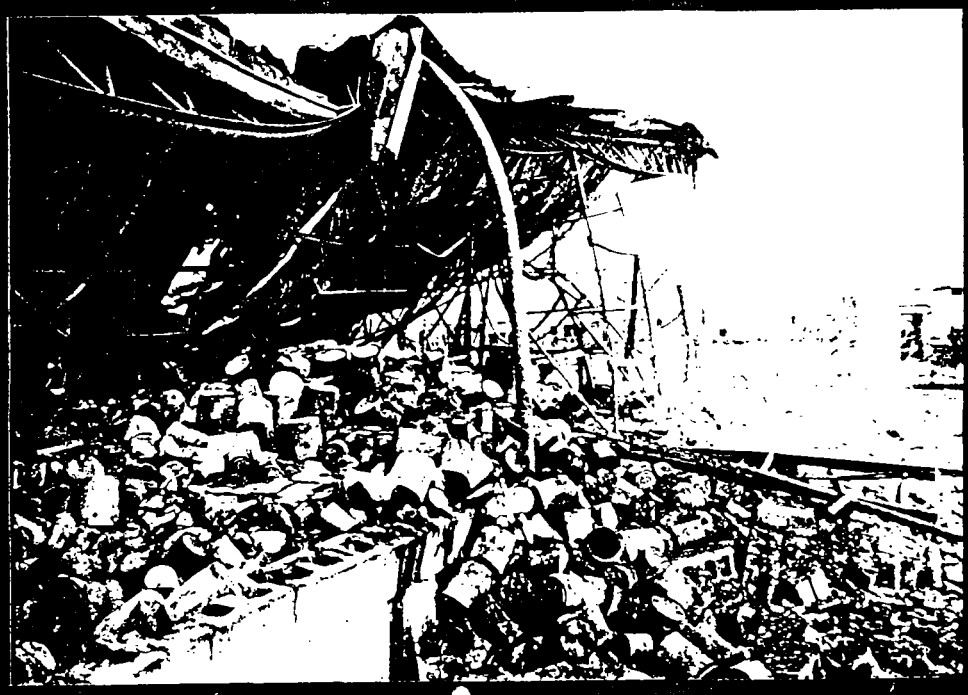
| | |
|---|---|
| PHOTO: | 2. |
| SITE NAME: | MORRIS PAINT CO, EAST ST LOUIS, ILLINOIS |
| DESCRIPTION: | DOCK AREA WITH METAL DEBRIS, DRUMS, AND TANKS, LEADING INTO MANUFACTURING AREA, LOOKING NORTHWEST. |
| DATE/TIME: | 03-13-90/0915 |
| PHOTOGRAPHER: | N. KUMARANAYAGAM |
| FILM: | 35MM, ISO 200 |

| | |
|---|---|
| PHOTO: | 3. |
| SITE NAME: | MORRIS PAINT CO, EAST ST LOUIS, ILLINOIS |
| DESCRIPTION: | THICK VARNISH LIKE MATERIAL SEEPING OUT FROM UNDER LOADING DOOR IN MANUFACTURING AREA LOOKING NORTHEAST. |
| DATE/TIME: | 03 90/0930 |
| PHOTOGRAPHER: | N. KUMARANAYAGAM |
| FILM: | 35MM, ISO 200 |

| | |
|---|---|
| PHOTO: | 4. |
| SITE NAME: | MORRIS PAINT CO, EAST ST LOUIS, ILLINOIS |
| DESCRIPTION: | NORTHWEST SIDE OF MANUFACTURING BUILDING WITH METAL DEBRIS, LOOKING NORTHEAST. |
| DATE/TIME: | 03-12-90/1730 |
| PHOTOGRAPHER: | N. KUMARANAYAGAM |
| FILM: | 35MM, ISO 200 |



| | |
|---|---|
| PHOTO: | 5. |
| SITE NAME: | MORRIS PAINT CO, EAST ST LOUIS, ILLINOIS |
| DESCRIPTION: | COLLAPSED ROOF IN WAREHOUSE AREA WITH BURNT PAINT CANS, LOOKING NORTHWEST. |
| DATE/TIME: | 03-13-90/1000 |
| PHOTOGRAPHER: | N. KUMARANAYAGAM |
| FILM: | 35MM, ISO 200 |



| | |
|---|---|
| PHOTO: | 6. |
| SITE NAME: | MORRIS PAINT CO, EAST ST LOUIS, ILLINOIS |
| DESCRIPTION: | COLLAPSED ROOF IN WAREHOUSE AREA WITH PAINT CANS, LOOKING NORTHEAST. |
| DATE/TIME: | 03-13-90/1012 |
| PHOTOGRAPHER: | N. KUMARANAYAGAM |
| FILM: | 35MM, ISO 200 |

| | |
|---|---|
| PHOTO: | 7. |
| SITE NAME: | MORRIS PAINT CO, EAST ST LOUIS, ILLINOIS |
| DESCRIPTION: | NORTHEAST SIDE OF WAREHOUSE AREA WITH DRUMS, COLLAPSED WALL OF BUILDING ON GROUND, LOOKING SOUTHEAST. |
| DATE/TIME: | 03-12-90/1742 |
| PHOTOGRAPHER: | N. KUMARANAYAGAM |
| FILM: | 35MM, ISO 200 |

| | |
|---|---|
| PHOTO: | |
| SITE NAME: | MORRIS PAINT CO, EAST ST LOUIS, ILLINOIS |
| DESCRIPTION: | INSIDE MANUFACTURING AREA WITH CANS, DRUMS, TANKS, AND DEBRIS. |
| DATE/TIME: | 03-13-90/1013 |
| PHOTOGRAPHER: | N. KUMARANAYAGAM |
| FILM: | 35MM, ISO 200 |

PHOTO: 9.
SITE NAME: MORRIS PAINT CO, EAST ST LOUIS, ILLINOIS
DESCRIPTION: INSIDE MANUFACTURING AREA WITH DRUMS CONTAINING SOLVENTS.
DATE/TIME: 03-13-90/1020
PHOTOGRAPHER: N. KUMARANAYAGAM
FILM: 35MM, ISO 200

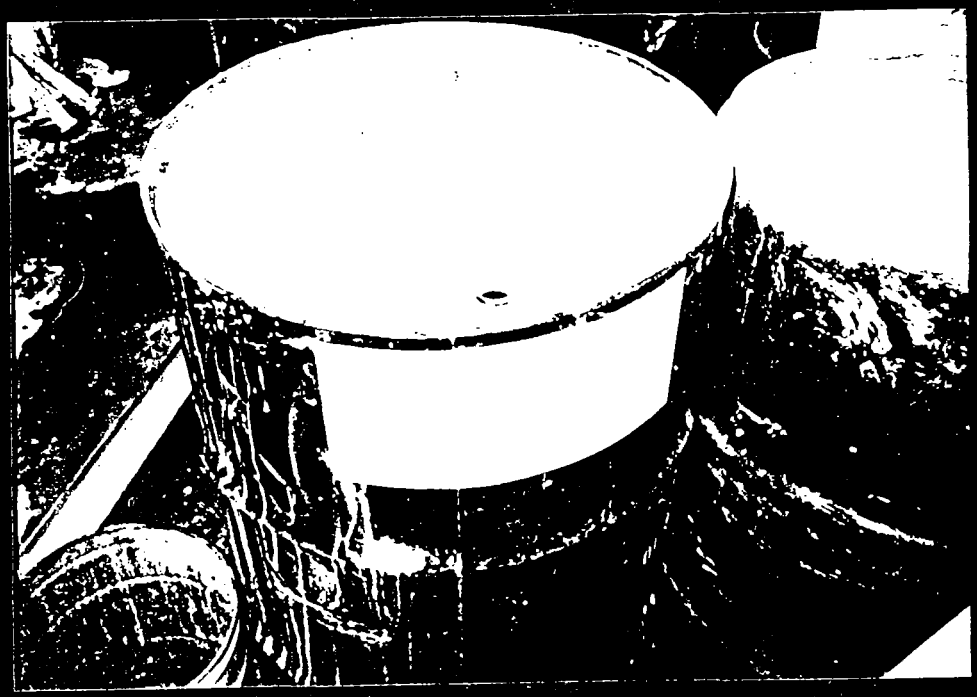


PHOTO: 10.
SITE NAME: MORRIS PAINT CO, EAST ST LOUIS, ILLINOIS
DESCRIPTION: DRUM CONTAINING TOLUENE, IN MANUFACTURING AREA.
DATE/TIME: 03-13-90/1030
PHOTOGRAPHER: N. KUMARANAYAGAM
FILM: 35MM, ISO 200

PHOTO: 11.
SITE NAME: MORRIS PAINT CO, EAST ST LOUIS, ILLINOIS
DESCRIPTION: VARNISH LIKE MATERIAL ON FLOOR, AND VATS IN MIXING AREA.
DATE/TIME: 03-13-90/1036
PHOTOGRAPHER: N. KUMARANAYAGAM
FILM: 35MM, ISO 200

PHOTO: 12.
SITE NAME: MORRIS PAINT CO, EAST ST LOUIS, ILLINOIS
DESCRIPTION: PIT WITH DRUMS AND LIQUID IN MIXING AREA.
DATE/TIME: 03-13-90/1043
PHOTOGRAPHER: N. KUMARANAYAGAM
FILM: 35MM, ISO 200

**ATTACHMENT B**

RCMS COST PROJECTIONS

Redacted-not relevant to the selection of the removal action.